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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,631	09/25/2006	Masatoshi Kuroda	049677-0177	7222
20277 7590 05/29/2008 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096				
EXAMINER DUONG, DIEU HIEN				
ART UNIT 2821		PAPER NUMBER		
MAIL DATE 05/29/2008		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/566,631

Applicant(s)

KURODA ET AL.

Examiner

DIEU HIEN T. DUONG

Art Unit

2821

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

This office action is a response to applicant's amendment filed on 02/19/2008. In virtue of this amendment, claim 5 is newly added; thus, claims 1-5 are currently in the instant application.

Applicant's arguments with respect to claims 1-5 have been fully considered and are persuasive. The rejection of 1-5 has been withdrawn. However, in view of further consideration, a new rejection is set forth below. This action is made Non Final.

Drawings

1. The drawings were received on 02/19/2008. These drawings are Figure 5, Figure 6, and Figure 7.

The drawings are objected to because there is no reference characters for the drawings 6 and 7. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or

"New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1:

Lines 2-3, the recitation "a lens which is configured by combining lens parts of **spherical core and spherical shell-like resin foams**" is unclear. It is not clear that the lens is configured by combining of spherical **core** and resin **foams** or by spherical **core and shell** being formed of resin foams. For examination purpose, it is interpreted as "a lens which is configured by combining lens parts of spherical core and spherical shell, wherein shell being made of resin foams".

Regarding claims 2 and 4:

Claims 2 and 4 are rejected since they are dependent on claim 1.

Regarding claim 3:

Line 10, there is insufficient antecedent basis for the limitation "**the luneberg lens arc**" in the claim.

Regarding claim 5:

Claim 5 is rejected since it is dependent on claim 3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins et al. (US 2,943,358 of record) in view of Robinson (US 2,804,713 of record).

Regarding claim 1, Hutchins discloses, in Figures 1-4 and 13-14, col. 1-7, a luneberg lens comprising a lens which is configured by combining lines parts of spherical core and spherical shell (Figure 4), wherein the lens is sealed by a synthetic resin film which is formed along a surface of the lens and of which own relative dielectric constant is higher than a relative dielectric constant of the outer most layer of the lens (see col. 2, lines 10- col. 4, line 20).

Hutchins does not disclose the synthetic resin film having a thickness of 100um or less.

However, such different is not of patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the thickness of the synthetic resin to obtain the optimum radiation characteristics of the lens. Therefore, to employ having the thickness of 100um or less of the synthetic resin film would have been deemed obvious to person skill in the art.

Hutchins does not disclose the shell being formed of resin foams.

Robinson discloses, in col.3, line 26-50, the shell being formed of resin foams.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the resin foams of Robinson in the shell of the luneberg lens of Hutchins to achieve the claimed invention, doing so would reduce the thickness of the luneberg lens (col. 4, lines 1-3).

Regarding claim 2, as applied to claim 1, Hutchins/Robinson disclose, (Hutchins, Figures 1-4 and 13-14, col. 1-7) wherein the synthetic resin film is a shrink film.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins et al. (US 2,943,358 of record) in view of Robinson (US 2,804,713 of record) and further in view of Grenell (6,215,453 B1 of record).

Regarding claim 4, as applied to claim 1, Hutchins/Robinson disclose,(Hutchins, Figures 1-4 and 13-14, col. 1-7), a cover made of a synthetic resin (1) sealing the surface of the luneberg lens, a feed placed at a focal point of the lens.

Hutchins/Robinson does not disclose a holding unit of the primary feed.

Grenell discloses, in Figure 1C, a holding unit of this primary feed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the holding unit of Grenell in the luneberg lens system of Hutchins to achieve the claim invention, doing so would provide supporting for the primary feed of the luneberg lens system.

Hutchins/Robinson does not disclose the cover having a thickness of 2mm or less.

However such difference is not of patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the thickness of the cover to seal the lens from moisture and to increase its mechanical strength (col. 7, lines 1-5). Therefore, to employ having the thickness of the cover of 2mm or less would have been deemed obvious to person skill in the art.

7. Claims 3 and 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins et al. (US 2,943,358) in view of Grenell (6,215,453 B1).

Regarding claim 3, Hutchins discloses, in Figures 1-14 and col. 1-7, a luneberg lens comprising a hemispherical core having a cross-section (Figures 1-4), a plurality of hemispherical luneberg lens shells (Figures 1-4) arranged concentrically around the hemispherical core, a reflecting plate (7 in Figure 14) attached to the cross-section of the hemispherical core, a primary feed (col. 2, lines 4-5) which is placed at a focal point portion of the lens and wherein the reflecting plate and the luneberg lens are scaled by a synthetic resin film formed along a surface of the luneberg lens, and a relative dielectric constant that is higher than a relative constant of an outermost layer of the plurality of hemispherical luneberg shells (see col. 2, lines 10- col. 4, line 20).

Hutchins does not disclose the synthetic resin film having a thickness of 100um or less. However, such different is not of patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the thickness of the synthetic resin to obtain the optimum radiation characteristics. Therefore, to employ having the thickness of 100um or less of the synthetic resin film would have been deemed obvious to person skill in the art.

Hutchins does not disclose a holding unit of the primary feed.

Grenell discloses, in Figure 1C, a holding unit of this primary feed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the holding unit of Grenell in the luneberg lens system of Hutchins to achieve the claim invention, doing so would provide supporting for the primary feed of the luneberg lens system.

Regarding claim 5, as applied to claim 3, Hutchins/Grenell disclose, (Hutchins, Figure 4), further comprising a cover (1) made of a synthetic resin sealing the surface of the luneberg lens (col. 7, lines 1-5).

Hutchins/Grenell do not disclose the cover having a thickness of 2mm or less.

However such difference is not of patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the thickness of the cover to seal the lens from moisture and to increase its mechanical strength (col. 7, lines 1-5). Therefore, to employ having the thickness of the cover of 2mm or less would have been deemed obvious to person skill in the art.

Inquiry

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIEU HIEN T. DUONG whose telephone number is (571)272-8980. The examiner can normally be reached on Monday - Friday, from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

05/14/08

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/Trinh Vo Dinh/

Primary Examiner, Art Unit 2821